

ABSTRACT OF THE DISCLOSURE

Nitrogen is rejected from a feed gas stream comprising methane and nitrogen so as to form a methane product. The feed gas is separated in a double rectification column comprising a higher pressure rectification column 14, a lower pressure rectification column 16, and a condenser-reboiler 18. Product methane is withdrawn
5 from the column 16 by a pump 42 and is vaporised. A flow of gas is recycled from the column 16 to the column 14, being warmed in main heat exchanger 4. A first part of the warmed recycle gas being compressed in compressor 48 to a first pressure and introduced into the higher pressure rectification column 14. A second part of the warmed recycle gas is compressed in the compressor 48 and condensed
10 in a second condenser-reboiler associated with an intermediate main exchange region of the lower pressure column 16 and is returned to the higher pressure rectification column 14.